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09/763,254	04/05/2001	Klaus-Peter Schmoll	1500	4582

7590 06/18/2003  
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EXAMINER  
CUEVAS, PEDRO J

ART UNIT PAPER NUMBER  
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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Paper No. 0603

Application Number: 09/763,254  
Filing Date: April 05, 2001  
Appellant(s): SCHMOLL ET AL.

\_\_\_\_\_  
Michael J. Striker  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed March 25, 2003.

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(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

The brief does not contain a statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief. Therefore, it is presumed that there are none. The Board, however, may exercise its discretion to require an explicit statement as to the existence of any related appeals and interferences.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is substantially correct. The changes are as follows:

the rejection of claim 6 under 35 U.S.C. § 112, second paragraph is withdrawn;

and

the drawings objection is withdrawn.

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**(7) Grouping of Claims**

The rejection of claims 1-8 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

**(8) Claims Appealed**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9) Prior Art of Record**

5,945,770	HANAFY	8-1999
5,245,734	ISSARTEL	9-1993

**(10) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-4 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,945,770A to HANAFY in view of U.S. Patent no. 5,245,734 to ISSARTEL.

HANAFY clearly teaches the construction of a piezoelectric actuator with:

a multi-layered structure of piezoelectric layers (24, 26, 28) and electrodes (40, 70) disposed between them;

an alternating lateral contact (50, 52) of the electrodes, wherein in the region between two piezoelectric layers, which contains one of the electrodes that are respectively contacted on opposite sides from one another;

a shape (difference in elevation shown in Figures 2 and 3) of the multi-layered structure which permits an increased mechanical stress to be exerted in the corners when the piezoelectric actuator is clamped in place perpendicular to the layer structure; and

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a static shield (not shown), which is a gold-coated Mylar layer coupled to the transducer chassis ground, disposed on top of the third layer of piezoelectric material (28),

for the purpose of providing better electrical match between the ultrasound transducer and the ultrasound system to which it is coupled to.

ISSARTEL teaches the construction of a piezoelectric actuator with a neutral phase without an electrode layer, and an insulating layer (4a) is disposed between of the layers of the multi-layered structure as shown in Figure 1.

It would have been obvious to one skilled in the art at the time the invention was made to use the shape of the multi-layered structure disclosed by HANAFY on the neutral phase piezoelectric actuator disclosed by ISSARTEL for the purpose of providing better electrical match between the ultrasound transducer and the ultrasound system to which it is coupled to.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,945,770A to HANAFY in view of U.S. Patent no. 5,245,734 to ISSARTEL as applied to claims 1-4 and 6-8 above, and further in view of common knowledge in the art.

No patentable weight has been given to the method of manufacturing limitations (i. e. grinding), since "even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

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**(11) Response to Argument**

**I. Combination of HANAFY and ISSARTEL.**

Appellant's arguments are directed to point out that the combination, under 35 U.S.C. § 103, of HANAFY in view of ISSARTEL is improper because the references to HANAFY and ISSARTEL do not disclose a transducer clamped by a force oriented perpendicular to the piezoelectric actuator, and thereby partially leveling or pre-tensioning the multi-layered structure for producing different stress in the stacks. The examiner respectfully disagrees with such rationale.

A piezoelectric actuator is a commonly known electronic device capable of generating electricity or electric polarity when subjected to a mechanical stress, or the generation of a mechanical stress when subjected to an applied voltage. As one with ordinary skill in the art would know, in order to either obtain a mechanical stress from a device, or to subject a device to a mechanical stress, this device must be fixed to a surface by a suitable means. This will allow proper and reliable electrical and physical connections to be made. This physical connection will inherently subject the piezoelectric device to a mechanical stress, which can be increased and decreased by the operation of the device.

The Board's attention is directed to Figure 2 of HANAFY which it is clearly shown the construction of a multilayer ultrasound transducer having a shape of the multi-layered structure which permits an increased mechanical stress to be exerted in the corners when the piezoelectric actuator is clamped in place perpendicular to the layer structure, as stated in the 35 U.S.C. § 103 rejection above. In this particular case the mechanical output of the transducer is obtained in the Z-range as shown in Figure 3 by the small directional arrows in layers 24, 26, and 28.

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It must be noted that it would have been obvious to one having ordinary skill in the art at the time the invention was made to use any type of supporting structure (holder or clamp) for fixing the piezoelectric device to an electronic board or circuit in order to use it, since it has been held that the omission of an element and its function in a combination where the remaining elements perform the same functions as before involves only routine skill in the art. In re Karlson, 136 USPQ 184.

Although there is no teaching in HANAFY of the neutral phases without an electrode layer, this feature is clearly shown in Figures 1, 5, and 6 of ISSARTEL and has been addressed in the 35 U.S.C. § 103 rejection above. ISSARTEL disclose the construction of multilayer piezoactuators made by stacking and pressing alternating layers of piezoceramic material and interdigital electrode material, with an electrode structure provided with pressure protected boundary discontinuities, which form areas in which electrodes edges do not make contact with the common electrical collectors of the piezoactuators and in which the piezoceramic layers are prevented from touching one another. The Examiner recognizes that references cannot be arbitrarily combined and that there must be some reason why one skilled in the art would be motivated to make the proposed combination of primary and secondary references. In re Nomiya, 184 USPQ 607 (CCPA 1975). However, there is no requirement that a motivation to make the modification be expressly articulated.

The test for combining references is what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. In re McLaughlin, 170 USPQ 209 (CCPA 1971). References are evaluated by what they suggest to one versed in the art, rather than by their specific disclosures. In re Bozek, 163 USPQ 545 (CCPA) 1969.

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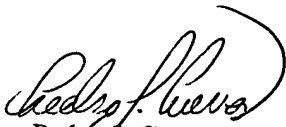
Art Unit: 2834

In conclusion, to establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references, when combined must teach or suggest all the claimed limitations.

The examiner believes that all three basic criteria have been met. Therefore, since the arguments presented by the applicant are not considered to rebut the prima facie case of obviousness, the claims are still considered to be unpatentable.



For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



Pedro J. Cuevas  
Art Unit 2834  
June 6, 2003

Conferees

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2. Nestor Ramirez 
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